REMARKS

This paper is submitted in reply to the Office Action dated March 22, 2007, within the three-month period for response. Reconsideration and allowance of all pending claims are respectfully requested.

In the subject Office Action, claims 1, 7, 15, 19 and 21-23 were objected-to by the Examiner. Additionally, claims 1-6 were rejected under 35 U.S.C. § 101. Moreover, claims 1-13 and 15-23 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,560,007 to Thai. Furthermore, claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Thai in view of U.S. Patent No. 6,757,670 to Inohara et al.

Applicants respectfully traverse the Examiner's rejections to the extent that they are maintained. Applicants have canceled claims 1-6, 9 and 15-23 and amended independent claim 7, leaving claims 7-8 and 10-14 still pending. Applicants respectfully submit that no new matter is being added by the above amendments, as the amendments are fully supported in the specification, drawings and claims as originally filed. Applicants also note that the amendments made herein are being made only for facilitating expeditious prosecution of the aforementioned claimed subject matter. Applicants are not conceding in this application that the originally-claimed subject matter is not patentable over the art cited by the Examiner, and Applicants respectfully reserve the right to pursue this and other subject matter in one or more continuation and/or divisional patent applications.

As an initial matter, Applicants wish to thank the Examiner and the Examiner's supervisor for the consideration granted in the telephone interview conducted with the undersigned on June 20, 2007. In the interview, Applicants proposed amendments to claim 7 to address the Examiner's rejections. The Examiner did indicate that the amendments to claim 7 were sufficient to overcome the rejection. The Examiner also agreed to contact the undersigned should the Examiner require any additional amendments in order to pass the case to allowance. Applicants urge the Examiner to contact the undersigned at 513-241-2324 should there be any outstanding issues that remain to be resolved prior to allowing the Application.

Turning now to the Examiner's rejections, the Examiner will note that Applicants have canceled all independent claims, with the exception of claim 7, in an attempt to narrow the number of outstanding issues in the Application. It is Applicants intent to file a continuation application prior to issuance of this application to pursue some or all of the canceled subject matter.

Claim 7 has been amended herein to incorporate the subject matter of claim 9, as well as to further highlight the concurrent nature of the first and second tasks, and to address the Examiner's objections with regard to the use of the term "wherein" in the claim. Claim 9 has also been canceled for consistency with the amendments to claim 7.

With respect to the claim objections, the Examiner will note that claim 7 has been amended to remove any "wherein" clauses. While Applicants believe the original wherein clauses did in fact represent positive limitations in the claims, Applicants nonetheless submit that the Examiner's concerns have been addressed, and as such, withdrawal of the objection to claim 7 is respectfully requested.

With respect to the rejections under 35 U.S.C. §101, claims 1-6 have been canceled. As such, these rejections have been rendered moot, and should be withdrawn.

With respect to the art-based rejections, the only remaining independent claim (claim 7) has been amended as noted above to incorporate the subject matter of claim 9, and to clarify the concurrent nature of the first and second tasks. Claim 7 as amended recites a method for executing a query that evaluates one or more records of a table according to predetermined selection criteria. The claimed method includes initializing a bitmap having a plurality of elements, each element of the bitmap corresponding to a record of the table, and each element initialized to an active value; running a first, primary task that individually retrieves each of the one or more records from storage according to whether the corresponding element of the bitmap has an active value; running, concurrently with the first task, a second, background task that is associated with the same query as the first task and that updates the bitmap by setting to an inactive value the respective element of the bitmap corresponding to any record that does not satisfy at least a portion of the selection criteria; and continuing to run the first task until all records from

the table, having a corresponding active-value bitmap element, have been retrieved from storage, including accessing the bitmap in the first task before at least one element is set to an inactive value by the second task to determine whether to retrieve a record from storage. Claim 7 also recites that the running the second task includes scanning a column of the table using an index built over the column, the portion of the selection criteria relating to record values within the column; determining a set of records whose record values within the column do not satisfy the portion of the selection criteria; and, concurrently with the first task individually retrieving records from storage having corresponding active-value bitmap elements, changing the respective corresponding bitmap element to an inactive value for each record within the set of records.

Claim 7 stands rejected as being anticipated by Thai. However, as discussed in the interview, Thai fails to disclose at least the concurrent individual retrieval of records from storage based upon a bitmap in a primary task and the updating of the bitmap in a background task, where the primary and background tasks run concurrently with one another. Furthermore, Thai fails to disclose the updating of a bitmap in a background task in part by scanning a column of a table using an index on that column.

In rejecting claim 7, the Examiner argues that Thai discloses multiple tasks running the same query, relying principally on col. 3, lines 1-20 of the reference (see, e.g., paragraphs 11.G-11.I of the Office Action). However, as Applicants discussed in the interview, col. 3 of Thai discloses that two bitmasks may be created from two indices and then ANDed together to generate a final solution for a query. While these operations are arguably "tasks" using an overly broad definition of the term, there is nothing in the reference to suggest that these tasks are actually concurrently running "tasks" (e.g., "processes" or "threads") from the standpoint of a multitasking computer, which is the type of "task" that is recited in claim 7.

To clarify the multitasking nature of the claimed first and second tasks in claim 7, Applicants have amended claim 7 to recite that such tasks are "primary" and "background" tasks, support for which may be found in blocks 322 and 324 of Fig. 3 as originally filed, as well as the accompanying description at pages 13-14 of the Application. In addition,

claim 7 now recites, as a step performed by the second (background) task, the step of "concurrently with the first task individually retrieving records from storage having corresponding active-value bitmap elements, changing the respective corresponding bitmap element to an inactive value for each record within the set of records," which was originally recited in claim 9.

As such, claim 7 requires that a first, primary task, essentially use a bitmap that has had all of its elements initialized to all active values to individually retrieve records from storage based upon whether the corresponding elements in the bitmap have active values, and a second, background task that runs in parallel with the first task to build the bitmap by setting selected elements to inactive values for any corresponding records that do not satisfy a portion of a particular selection criteria. Put another way, the first task uses the bitmap to determine whether records should be retrieved from storage concurrently with the bitmap being built or updated by the second, background task. This is in stark contrast to conventional bitmaps, such as those described in col. 3 of Thai, which are required to be built before they can be used.

The Examiner has also previously relied on Figs. 5C and 5D, and the passage at col. 20, lines 60-61 in Thai, for arguing that Thai discloses updating bitmaps while retrieving records. As Applicants have previously noted, however, Thai only discloses that a bitmap may be updated after a corresponding record has been retrieved, but that the operation is performed in a single task. Figs. 5C and 5D describe the situation where the first time a record is retrieved, its corresponding bitmap value may be set to an inactive value once it is determined that the record does not actually match a selection criterion, such that the next time an attempt is made to access the record, the bitmap may be used to avoid that attempt. There is, however, no disclosure in Thai that concurrently running tasks may be used to separately perform the access of records and the updating of elements in a bitmap.

Applicants have also previously noted that Thai discloses the use of multiple tasks at col. 19, line 58 to col. 20, line 13. However, these tasks are used for separate queries, and claim 7 requires that the first and second tasks are associated with the same query. The "learned mode" described in this passage of Thai essentially allows a bitmap to be updated

as records are accessed by multiple users. There is, however, no disclosure in the reference of using two concurrently running tasks, associated with the same query, and configured to respectively use and build the same bitmap.

Applicants therefore respectfully submit that Thai falls short of anticipating claim 7. Thai does not disclosure the use of a first, primary task to access records based upon a bitmap, in combination with a second, background task that is associated with the same query as the first task, and that runs concurrently with the first task to set elements in the bitmap to inactive values for any corresponding records that do not satisfy a portion of a particular selection criteria. Claim 7 is therefore novel over Thai, and the rejection should be withdrawn.

In addition, claim 7 is non-obvious over Thai, as there is no suggestion in the reference of the desirability of using two concurrently executing tasks for a single query to respectively and concurrently use and build a bitmap. In addition, the invention defined in claim 7 provides a unique and unexpected advantage over the prior art by enabling a bitmap to be used prior to being completely built, thus reducing or eliminating the delay traditionally associated with the initial use of a bitmap. Reconsideration and allowance of claim 7, and of claims 8 and 10-14 which depend therefrom, are therefore respectfully requested.

As a final matter, Applicants traverse the Examiner's rejections of the dependent claims based upon their dependency on the aforementioned independent claim. Nonetheless, Applicants do note that a number of these claims recite additional features that further distinguish these claims from the references cited by the Examiner. However, in the interest of prosecutorial economy, these claims will not be addressed separately herein.

In summary, Applicants respectfully submit that all pending claims are novel and non-obvious over the prior art of record. Reconsideration and allowance of all pending claims are therefore respectfully requested. If the Examiner has any questions regarding the foregoing, or which might otherwise further this case onto allowance, the Examiner may contact the undersigned at (513) 241-2324. Moreover, if any other charges or credits

are necessary to complete this communication, please apply them to Deposit Account 23 3000.

Respectfully submitted,

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